interference scenarios, a SpaceCast™ satellite and an Expressway™ satellite are spaced 2° apart on the geostationary arc. The parameters for these two systems are given in Tables B-5 and B-6. The worst case scenarios are listed with their C/I values as scenarios #6 and #8 in Table B-2. The C/I results show that for Ku-band operations, Expressway™ and SpaceCast™ are compatible spaced 2° apart.

Scenario #5 is shown in Table B-11 as an example of how the C/I ratios for scenarios #5, 6, 7, and 8 are calculated.

Table B-1. C/I Ratios for Various V-Band Scenarios.

Interference Scenario	Interfer. E/S Trans. Ant. Diameter, Sidelobe Level	Interf. E/S Rec. Ant. Diameter	Desired E/S Trans. Ant. Diameter	Desired E/S Rec. Ant. Dia., Sidelobe Level	C/I, dB
1) SpaceCast™ interfer. with System-X	2.5 m, 29-25log(Theta)	0.45 m	2.5 m	0.45 m, 29-25log(Theta)	20.4
2) SpaceCast™ interfer. with Expressway™	2.5 m, 29-25log(Theta)	2.5 m	2.5 m	2.5 m, 29-25log(Theta)	27.4
3) System-X interfer. with SpaceCast™	2.5 m, 29-25log(Theta)	0.45 m	2.5 m	0.45 m, 29-25log(Theta)	20.4
4) Expressway™ interfer. with SpaceCast™	2.5 m, 29-25log(Theta)	2.5	2.5 m	1.0 m, 29-25log(Theta)	32.3

Table B-2. C/I Ratios for Various Ku-Band Scenarios.

Interference Scenario	Interfer. E/S Trans. Ant., Sidelobe Level	Interf. E/S Rec. Ant. Diameter	Desired E/S Trans. Ant. Diameter	Desired E/S Rec. Ant. Dia., Sidelobe Level	C/I, dB
5) SpaceCast™ interfer. with System-Y	2.5 m, 29-25log(Theta)	1.0 m	5.0 m	2.5 m, 29-25log(Theta)	25.4
6) SpaceCast™ interfer. with Expressway™ system	2.5 m, 29-25log(Theta)	2.5 m	2.5 m	2.5 m, 29-25log(Theta)	15.4
7) System-Y interfering with SpaceCast™	5.0 m, 29-25log(Theta)	2.5 m	2.5 m	1.0 m, 29-25log(Theta)	21.7[A]
8) Expressway™ interfer. with SpaceCast™	2.5 m, 29-25log(Theta)	2.5	2.5 m	1.0 m, 29-25log(Theta)	22.9

A. This is a single entry case: it is assumed that only one System-Y transponder with a bandwidth of approximately 30 MHz interferes with SpaceCast™. But, if System-Y has several transponders which fill the entire 214 MHz bandwidth of the SpaceCast™ satellite, the C/I will decrease by about 8.5 dB.

List of link parameters used in interference analyses

Table B-3. Uplink Parameter List for V-band Interference Analysis

Uplink Parameter	SpaceCast™	Expressway™	System-X
Signal Frequency, GHz (λ in m)	48.7 (0.006156)	48.7 (0.006156)	48.7 (0.006156)
Earth Sta. Trans. Pwr., W (dBW)	50 (17.0)	30 (14.8)	50 (17.0)
Earth Sta. HPA Pwr. Backoff, dB	2.5	3	2.5
Number of Carriers	1	1	1
Earth Sta. Transmitter Losses, dB	1.0	1.0	1.0
Earth Sta. Ant. Diam., m	2.5	2.5	2.5
Earth Sta. Trans. Ant. On-Axis Gain, dBi	59.5 (η=0.55)	59.5 (η=0.55)	59.5 (η=0.55)
Earth Sta. Ant. Off-Axis Gain Pattern, dBi	29-25log(Theta)	29-25log(Theta)	29-25log(Theta)
Satellite Max. Rec. Ant. Gain, dBi	58.0	52.0	58.0
Satellite Edge-of-Coverage Rec. Ant. Gain, dBi	55.0	49.0	55.0
Single Carrier Channel Bandwidth, MHz	300	300	300

Table B-4. Downlink Parameter List for V-band Interference Analysis

Downlink Parameter	SpaceCast™	Expressway™	System-X
Signal Frequency, GHz (λ in m)	41.0 (.007312)	41.0 (.007312)	41.0 (.007312)
Satellite Trans. Pwr., W (dBW)	100 (20.0)	100 (20.0)	100 (20.0)
Satellite HPA Pwr. Backoff, dB	2	2	2
Number of Carriers	10	10	10
Satellite Transmitter Losses, dB	1.0	1.0	1.0
Satellite Max. Trans. Ant. Gain, dBi	58.0	52.0	58.0
Satellite Edge-of-Coverage Trans. Ant. Gain, dBi	55.0	49.0	55.0
Earth Sta. Ant. Diameter, m	0.45, 1.0, 2.5	2.5	0.45, 1.0, 2.5
Earth Sta. Rec. Ant. On-Axis Gain, dBi	43.9, 50.8, 58.0 (η=0.65, 0.65, 0.55)	58.0	43.9, 50.8, 58.0 (η=0.65, 0.65, 0.55)
Earth Sta. Ant. Off-Axis Gain Pattern, dBi	29-25log(Theta)	29-25log(Theta)	29-25log(Theta)
Single Carrier Channel Bandwidth, MHz	300	300	300

Table B-5. Uplink Parameter List for Ku-band Interference Analysis

Uplink Parameter	SpaceCast™	Expressway™	System-Y
Signal Frequency, GHz (λ in m)	13.0 (0.02306)	13.0 (0.02306)	13.0 (0.02306)
Earth Sta. Trans. Pwr., W (dBW)	100 (20.0)	100 (20.0)	50 (17.0)
Earth Sta. HPA Pwr. Backoff, dB	1.0	1.0	0
Number of Carriers	1	1	1
Earth Sta. Transmitter Losses, dB	0.3	0.3	0.3
Earth Sta. Ant. Diam., m	2.5	2.5	5
Earth Sta. Trans. Ant. On-Axis Gain, dBi	48.8 (η=0.65)	48.8	54.1 (η=0.55)
Earth Sta. Ant. Off-Axis Gain Pattern, dBi	29-25log(Theta)	29-25log(Theta)	29-25log(Theta)
Satellite Max. Rec. Ant. Gain, dBi	37.0	37.0	35
Satellite Edge-of-Coverage Rec. Ant. Gain, dBi	34.0	34.0	32
Single Carrier Bandwidth, MHz	214	240	30

Table B-6. Downlink Parameter List for Ku-band Interference Analysis

Downlink Parameter	SpaceCast™	Expressway™	System-Y
Signal Frequency, GHz (λ in m)	11.0 (.02725)	11.0 (.02725)	11.0 (.02725)
Satellite Trans. Pwr., W (dBW)	150 (21.8)	25 (14.0)	50 (17.0)
Satellite HPA Pwr. Backoff, dB	0	0	0
Number of Carriers	1	1	1
Satellite Transmitter Losses, dB	0.6	0.5	0.5
Satellite Max. Trans. Ant. Gain, dBi	37.0	37.0	35
Satellite Edge-of-Coverage Trans. Ant. Gain, dBi	34.0	34.0	32
Earth Sta. Ant. Diameter, m	1.0, 2.5	2.5	2.5
Earth Sta. Rec. Ant. On-Axis Gain, dBi	39.7, 47.3 (η=0.70, 0.65)	47.3	47.3 (η=0.65)
Earth Sta. Ant. Off-Axis Gain Pattern, dBi	29-25log(Theta)	29-25log(Theta)	29-25log(Theta)
Single Carrier Bandwidth, MHz	214	240	30

Interference analyses: typical calculations

Table B-7. V-band Interference Analysis: SpaceCast™ Interfering With System-X, Scenario #1 (2° separation)

Uplink Budget Item	Value	Unit
Interf. (SpaceCast™) E/S TX Power	17.0	dBW
Interf. E/S HPA Backoff	-2.5	dB
Per Carrier Loss	-0.0	dB
Interf. E/S TX losses	-1.0	dB
Interf. E/S Ant. Trans. Gain toward X Sat.	20.4	dBi
EIRP toward X Sat.	33.9	dBW
Interfering Trans. BW Mismatch	0.0	dB
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
Max. X Satellite Rec. Ant. Gain	58.0	dBi
$(I)_{uplink}$	**-130.3**	**dBW**
Desired (System-X) E/S TX Power	17.0	dBW
Desired E/S HPA Backoff	-2.5	dB
Per Carrier Loss	-0.0	dB
Desired E/S TX losses	-1.0	dB
Desired E/S Ant. Trans. Gain On-Axis (2.5 m, effic. = 0.55)	59.5	dBi
EIRP	73.0	dBW
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
X Sat. Edge-of-Coverage Rec. Ant. Gain	55.0	dBi
$(C)_{uplink}$	**-94.2**	**dBW**
$(C/I)_{uplink} = (C)_{uplink} - (I)_{uplink}$	**36.1**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-7. V-band Interference Analysis: SpaceCast™ Interfering With System-X, Scenario #1 (2° separation) (cont'd)

Downlink Budget Item	Value	Unit
Interf. Satell. (SpaceCast™) TX Pwr.	20.0	dBW
Interf. Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Interf. Satellite TX losses	-1.0	dB
Max. Interf. Satellite Trans. Ant. Gain	58.0	dBi
EIRP toward System-X E/S	65.0	dBW
Interfering Trans. BW Mismatch	0.0	dB
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
Sys.-X E/S Ant. Rec. Gain toward Interf. Satell.	20.4	dBi
$(I)_{downlink}$	**-133.3**	**dBW**
Desired X-Satellite TX Power	20.0	dBW
Desired X-Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Desired X-Satellite TX losses	-1.0	dB
Desired X-Satell. Edge-of-Coverage Trans. Ant. Gain	55.0	dBi
EIRP	62.0	dBW
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
Sys.-X E/S Ant. Rec. Gain On-Axis (0.45 m dia., effic. = 0.65)	43.9	dBi
$(C)_{downlink}$	**-112.8**	**dBW**
$(C/I)_{downlink} = (C)_{downlink} - (I)_{downlink}$	**20.5**	**dB**
$C/I = ((C/I)_{uplink}^{-1} + (C/I)_{downlink}^{-1})^{-1}$	**20.4**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-8. V-band Interference Analysis: SpaceCast™ Interfering With Expressway™, Scenario #2 (2° separation)

Uplink Budget Item	Value	Unit
Interf. (SpaceCast™) E/S TX Power	17.0	dBW
Interf. E/S HPA Backoff	-2.5	dB
Per Carrier Loss	-0.0	dB
Interf. E/S TX losses	-1.0	dB
Interf. E/S Ant. Trans. Gain toward Expressway™ Sat.	20.4	dBi
EIRP toward Expressway™ Sat.	33.9	dBW
Interfering Trans. BW Mismatch	0.0	dB
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
Max. Expressway™ Satellite Rec. Ant. Gain	52.0	dBi
$(I)_{uplink}$	**-136.3**	**dBW**
Desired(Expressway™) E/S TX Pwr	14.8	dBW
Desired E/S HPA Backoff	-3.0	dB
Per Carrier Loss	-0.0	dB
Desired E/S TX losses	-1.0	dB
Desired E/S Ant. Trans. Gain On-Axis	59.5	dBi
EIRP	70.3	dBW
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
Expressway™ Sat. Edge-of-Coverage Rec. Ant. Gain	49.0	dBi
$(C)_{uplink}$	**-102.9**	**dBW**
$(C/I)_{uplink} = (C)_{uplink} - (I)_{uplink}$	**33.4**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-8. V-band Interference Analysis: SpaceCast™ Interfering With Expressway™, Scenario #2 (2° separation) (cont'd)

Downlink Budget Item	Value	Unit
Interf. Satell. (SpaceCast™) TX Pwr.	20.0	dBW
Interf. Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Interf. Satellite TX losses	-1.0	dB
Max. Interf. Satellite Trans. Ant. Gain	58.0	dBi
EIRP toward Expressway™ E/S	65.0	dBW
Interfering Trans. BW Mismatch	0.0	dB
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
Expressway™ E/S Ant. Rec. Gain toward Interf. Satell.	20.4	dBi
$(I)_{downlink}$	**-133.3**	**dBW**
Desired(Expressway™) Sat. TX Pwr.	20.0	dBW
Desired Satellite HPA Bkoff.	-2.0	dB
Per Carrier Loss	-10.0	dB
Desired Satellite TX losses	-1.0	dB
Desired Satellite Edge-of-Coverage Trans. Ant. Gain	49.0	dBi
EIRP	56.0	dBW
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
Expressway™ E/S Ant. Rec. Gain On-Axis	58.0	dBi
$(C)_{downlink}$	**-104.7**	**dBW**
$(C/I)_{downlink} = (C)_{downlink} - (I)_{downlink}$	**28.6**	**dB**
$C/I = ((C/I)_{uplink}^{-1} + (C/I)_{downlink}^{-1})^{-1}$	**27.4**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-9. V-band Interference Analysis: System-X Interfering With SpaceCast™, Scenario #3 (2° separation)

Uplink Budget Item	Value	Unit
Interf. (System-X) E/S TX Power	17.0	dBW
Interf. E/S HPA Backoff	-2.5	dB
Per Carrier Loss	-0.0	dB
Interf. E/S TX losses	-1.0	dB
Interf. E/S Ant. Trans. Gain toward SpaceCast™ Sat.	20.4	dBi
EIRP toward SpaceCast™ Sat.	33.9	dBW
Interfering Trans. BW Mismatch	0.0	dB
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
Max. SpaceCast™ Satellite Rec. Ant. Gain	58.0	dBi
$(I)_{uplink}$	**-130.3**	**dBW**
Desired (SpaceCast™) E/S TX Power	17.0	dBW
Desired E/S HPA Backoff	-2.5	dB
Per Carrier Loss	-0.0	dB
Desired E/S TX losses	-1.0	dB
Desired E/S Ant. Trans. Gain On-Axis (2.5 m, effic. = 0.55)	59.5	dBi
EIRP	73.0	dBW
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
SpaceCast™ Sat. Edge-of-Coverage Rec. Ant. Gain	55.0	dBi
$(C)_{uplink}$	**-94.2**	**dBW**
$(C/I)_{uplink} = (C)_{uplink} - (I)_{uplink}$	**36.1**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-9. V-band Interference Analysis: System-X Interfering With SpaceCast™, Scenario #3 (2° separation) (cont'd)

Downlink Budget Item	Value	Unit
Interf. Satell. (System-X) TX Pwr.	20.0	dBW
Interf. Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Interf. Satellite TX losses	-1.0	dB
Max. Interf. Satellite Trans. Ant. Gain	58.0	dBi
EIRP toward SpaceCast™ E/S	65.0	dBW
Interfering Trans. BW Mismatch	0.0	dB
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
SpaceCast™ E/S Ant. Rec. Gain toward Interf. Satell.	20.4	dBi
$(I)_{downlink}$	**-133.3**	**dBW**
Desired (SpaceCast™) Satellite TX Power	20.0	dBW
Desired Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Desired Satellite TX losses	-1.0	dB
Desired Satell. Edge-of-Coverage Trans. Ant. Gain	55.0	dBi
EIRP	62.0	dBW
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
SpaceCast™ E/S Ant. Rec. Gain On-Axis (0.45 m dia., effic. = 0.65)	43.9	dBi
$(C)_{downlink}$	**-112.8**	**dBW**
$(C/I)_{downlink} = (C)_{downlink} - (I)_{downlink}$	**20.5**	**dB**
$C/I = ((C/I)_{uplink}^{-1} + (C/I)_{downlink}^{-1})^{-1}$	**20.4**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-10. V-band Interference Analysis: Expressway™ Interfering With SpaceCast™, Scenario #4 (2° separation)

Uplink Budget Item	Value	Unit
Interf. (Expressway™) E/S TX Power	14.8	dBW
Interf. E/S HPA Backoff	-3.0	dB
Per Carrier Loss	-0.0	dB
Interf. E/S TX losses	-1.0	dB
Interf. E/S Ant. Trans. Gain toward SpaceCast™ Sat.	20.4	dBi
EIRP toward SpaceCast™ Sat.	31.2	dBW
Interfering Trans. BW Mismatch	-0.0	dB
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
Max. SpaceCast™ Satellite Rec. Ant. Gain	58.0	dBi
$(I)_{uplink}$	**-133.0**	**dBW**
Desired (SpaceCast™) E/S TX Power	17.0	dBW
Desired E/S HPA Backoff	-2.5	dB
Per Carrier Loss	-0.0	dB
Desired E/S TX losses	-1.0	dB
Desired E/S Ant. Trans. Gain On-Axis (2.5 m, effic. = 0.55)	59.5	dBi
EIRP	73.0	dBW
Space Loss(217.6)[A] + Atm. Loss (4.6)	-222.2	dB
SpaceCast™ Sat. Edge-of-Coverage Rec. Ant. Gain	55.0	dBi
$(C)_{uplink}$	**-94.2**	**dBW**
$(C/I)_{uplink} = (C)_{uplink} - (I)_{uplink}$	**38.8**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-10. V-band Interference Analysis: Expressway™ Interfering With SpaceCast™, Scenario #4 (2° separation) (cont'd)

Downlink Budget Item	Value	Unit
Interf. Satell. (Expressway™) TX Pwr.	20.0	dBW
Interf. Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Interf. Satellite TX losses	-1.0	dB
Max. Interf. Satellite Trans. Ant. Gain	52.0	dBi
EIRP toward SpaceCast™ E/S	59.0	dBW
Interfering Trans. BW Mismatch	-0.0	dB
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
SpaceCast™ E/S Ant. Rec. Gain toward Interf. Satell.	20.4	dBi
$(I)_{downlink}$	**-139.3**	**dBW**
Desired (SpaceCast™) Satellite TX Power	20.0	dBW
Desired Satellite HPA Backoff	-2.0	dB
Per Carrier Loss	-10.0	dB
Desired Satellite TX losses	-1.0	dB
Desired Satell. Edge-of-Coverage Trans. Ant. Gain	55.0	dBi
EIRP	62.0	dBW
Space Loss(216.1)[A] + Atm. Loss (2.6)	-218.7	dB
SpaceCast™ E/S Ant. Rec. Gain On-Axis (1.0 m dia.[B], effic. = 0.65)	50.8	dBi
$(C)_{downlink}$	**-105.9**	**dBW**
$(C/I)_{downlink} = (C)_{downlink} - (I)_{downlink}$	**33.4**	**dB**
$C/I = ((C/I)_{uplink}^{-1} + (C/I)_{downlink}^{-1})^{-1}$	**32.3**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

B. Because a SpaceCast™ earth station's receiver bandwidth varies as a function of its antenna size, the 1.0-m antenna receiver is the worst case, not the 0.45-m antenna receiver.

Table B-11. Ku-band Interference Analysis: SpaceCast™ Interfering With System-Y, Scenario #5 (2° separation)

Uplink Budget Item	Value	Unit
Interf. (SpaceCast™) E/S TX Power	20.0	dBW
Interf. E/S HPA Backoff	-1.0	dB
Per Carrier Loss	0.0	dB
Interf. E/S TX losses	-0.3	dB
Interf. E/S Ant. Trans. Gain toward Y Sat.	20.4	dBi
EIRP toward Y Sat.	39.1	dBW
Interfering Trans. BW Mismatch	-8.5	dB
Space Loss (206.1)[A] + Atm. Loss (0.5)	-206.6	dB
Max. Y Satellite Rec. Ant. Gain	35.0	dBi
$(I)_{uplink}$	**-141.0**	**dBW**
Desired (System-Y) E/S TX Power	17.0	dBW
Desired E/S HPA Backoff	0.0	dB
Per Carrier Loss	0.0	dB
Desired E/S TX losses	-0.3	dB
Desired E/S Ant. Trans. Gain On-Axis (5 m dia., effic. = 0.55)	54.1	dBi
EIRP	70.8	dBW
Space Loss (206.1)[A] + Atm. Loss (0.5)	-206.6	dB
Y Sat. Edge-of-Coverage Rec. Ant. Gain	32.0	dBi
$(C)_{uplink}$	**-103.8**	**dBW**
$(C/I)_{uplink} = (C)_{uplink} - (I)_{uplink}$	**37.2**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Table B-11. Ku-band Interference Analysis: SpaceCast™ Interfering With System-Y, Scenario #5 (2° separation) (cont'd)

Downlink Budget Item	Value	Unit
Interf. Satell. (SpaceCast™) TX Pwr.	21.8	dBW
Interf. Satellite HPA Backoff	-0.0	dB
Per Carrier Loss	-0.0	dB
Interf. Satellite TX losses	-0.6	dB
Max. Interf. Satellite Trans. Ant. Gain	37.0	dBi
EIRP toward System-Y E/S	58.2	dBW
Interfering Trans. BW Mismatch	-8.5	dB
Space Loss (204.6)[A] + Atm. Loss (0.2)	-204.8	dB
Sys.-Y E/S Ant. Rec. Gain toward Interf. Satell.	20.4	dBi
$(I)_{downlink}$	**-134.7**	**dBW**
Desired Y-Satellite TX Power	17.0	dBW
Desired Y-Satellite HPA Backoff	-0.0	dB
Per Carrier Loss	-0.0	dB
Desired Y-Satellite TX losses	-0.5	dB
Desired Y-Satell. Edge-of-Coverage Trans. Ant. Gain	32.0	dBi
EIRP	48.5	dBW
Space Loss (204.6)[A] + Atm. Loss (0.2)	-204.8	dB
Sys.-Y E/S Ant. Rec. Gain On-Axis (2.5 m dia., effic. = 0.65)	47.3	dBi
$(C)_{downlink}$	**-109.0**	**dBW**
$(C/I)_{downlink} = (C)_{downlink} - (I)_{downlink}$	**25.7**	**dB**
$C/I = ((C/I)_{uplink}^{-1} + (C/I)_{downlink}^{-1})^{-1}$	**25.4**	**dB**

A. Assuming 37,000 km slant range; other losses also assumed to be the same for the interfering signal and the desired signal.

Antenna Coverage

APPENDIX C: ANTENNA COVERAGE

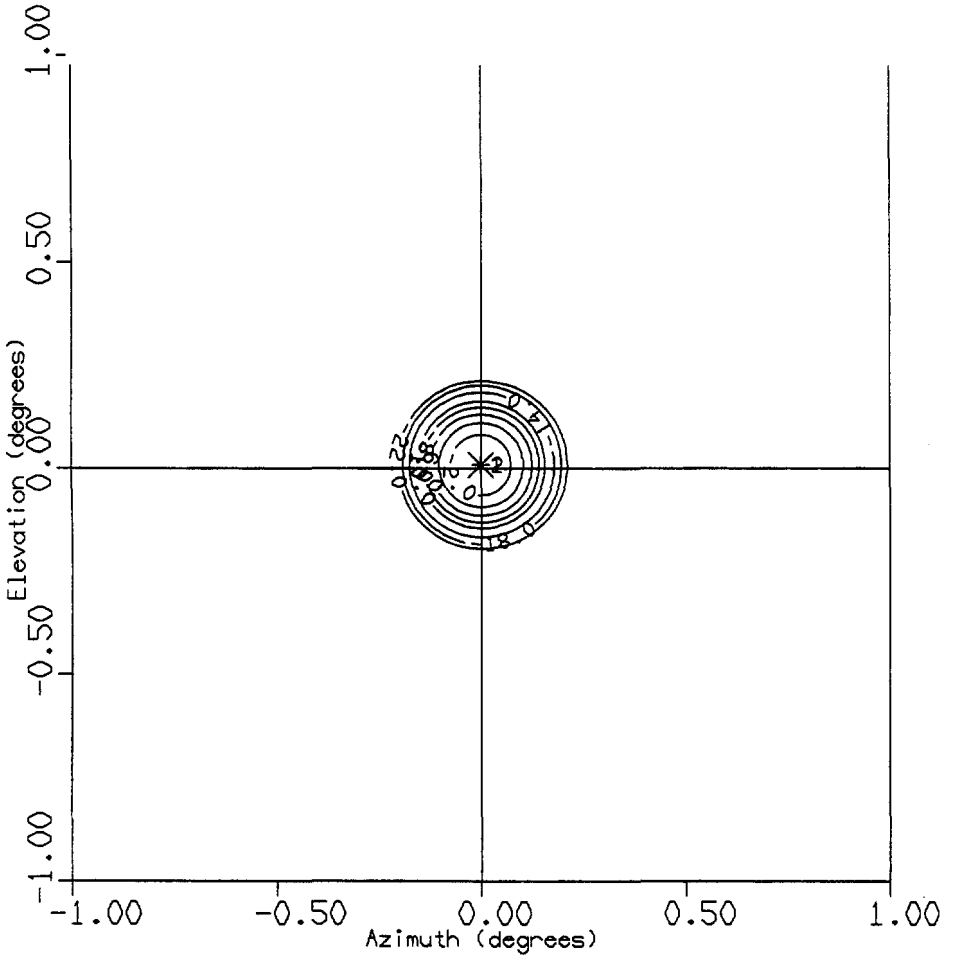


Figure C-1. V-band Receive/Transmit Satellite Antenna Gain Contours. For both RHCP and LHCP. Maximum gain = 58 dBi, maximum G/T = 29.4 dB/K.

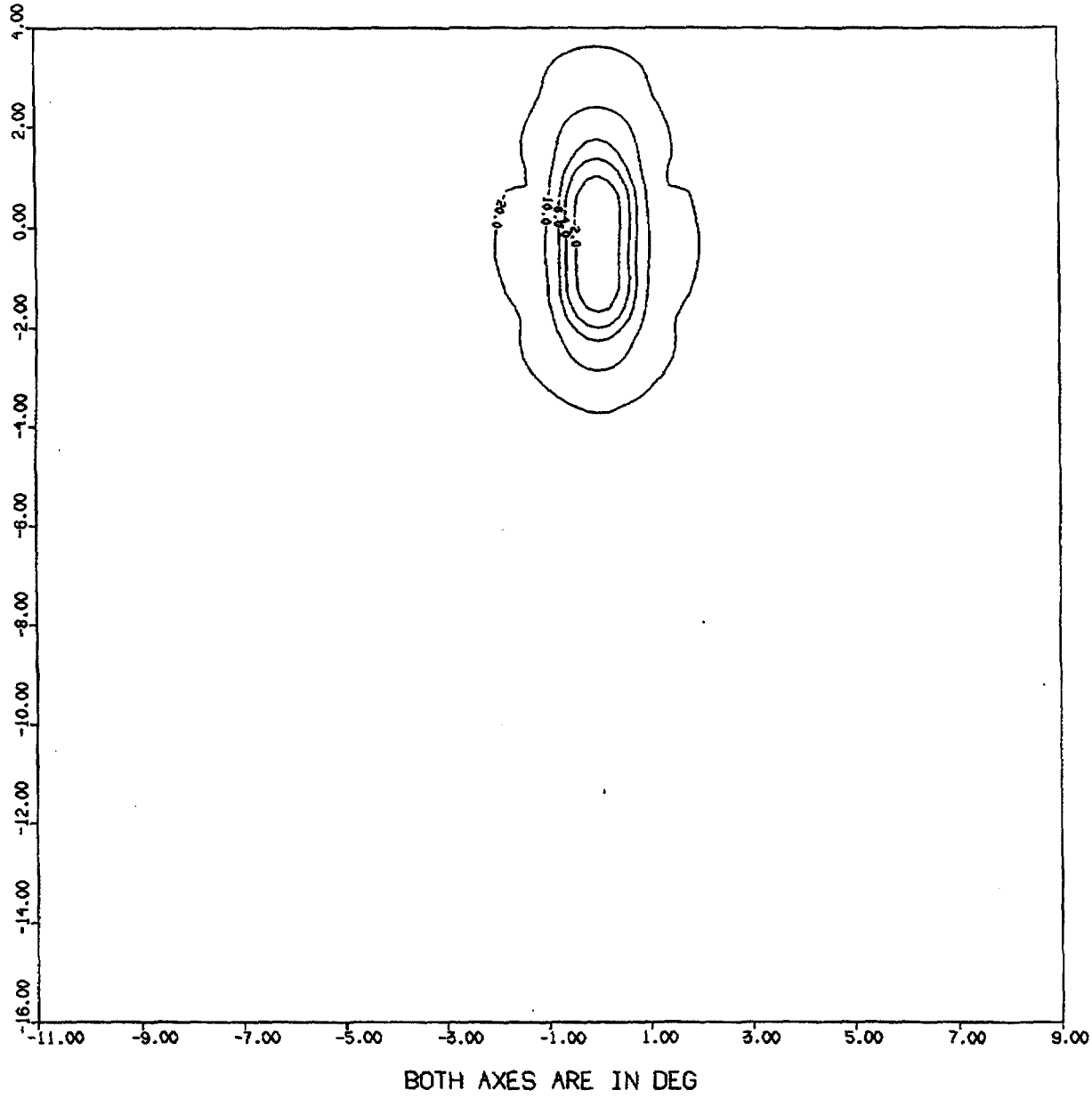
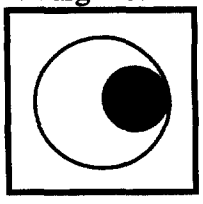


Figure C-2. Ku-Band Receive/Transmit Elliptical Beam Contours. For both RHCP and LHCP. Maximum gain = 37 dBi, maximum G/T = 10.9 dB/K.

Each 0.15 deg beam is steerable within a 0.30 deg circle. Map shows 0.30 deg coverage circles. Box shows 0.15 deg beam inside a 0.30 deg beam. The 0.15 deg beams will be deployed over a maximum of 40 uplink and 40 downlink areas within the coverage shown.



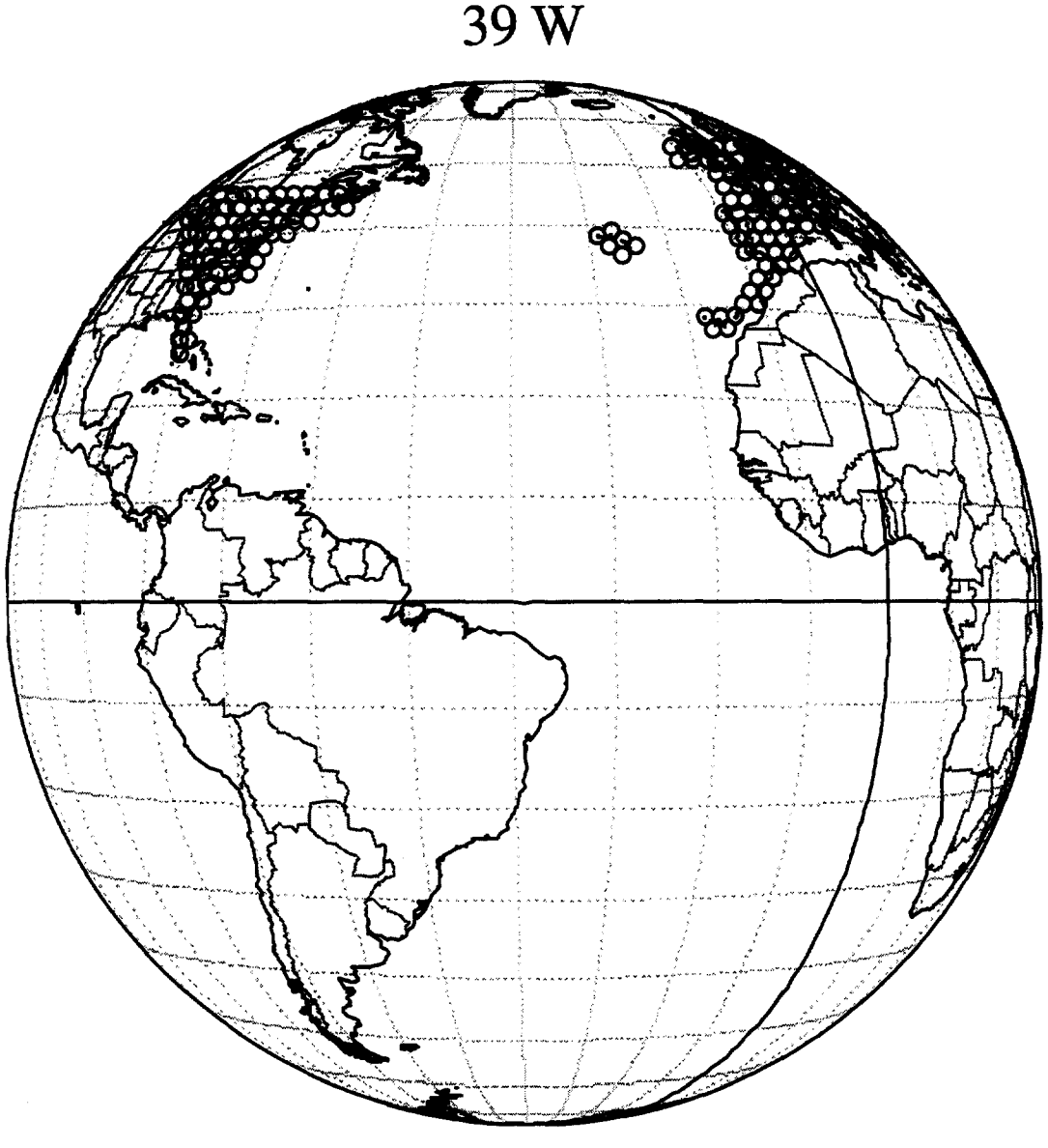
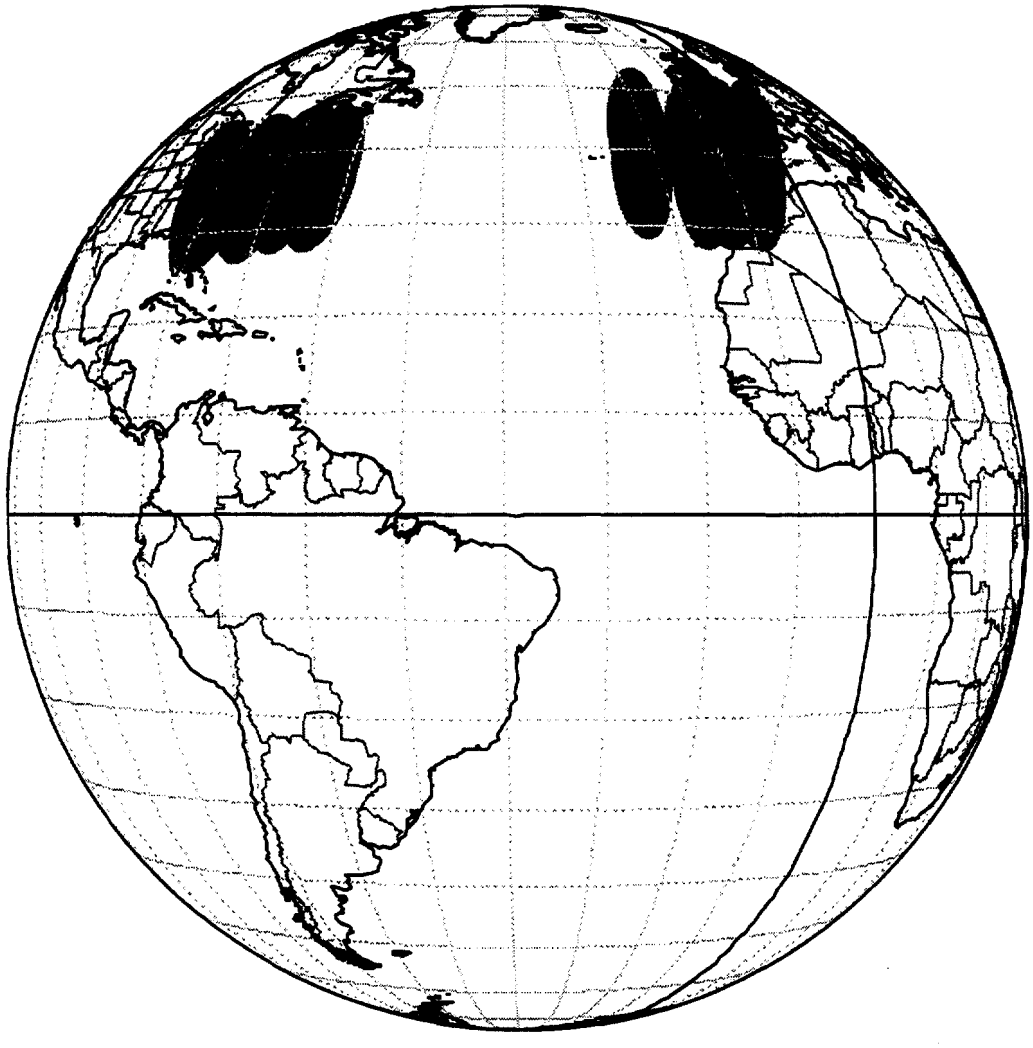


Figure C-3. V-band Satellite Coverage at 39° W

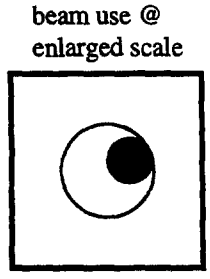
"Elliptical" beams provide Ku-band coverage as shown in shaded regions.



39 W

Figure C-4. Ku-band Satellite Coverage at 39° W

Each 0.15 deg beam is steerable within a 0.30 deg circle. Map shows 0.30 deg coverage circles. Box shows 0.15 deg beam inside a 0.30 deg beam. The 0.15 deg beams will be deployed over a maximum of 40 uplink and 40 downlink areas within the coverage shown.



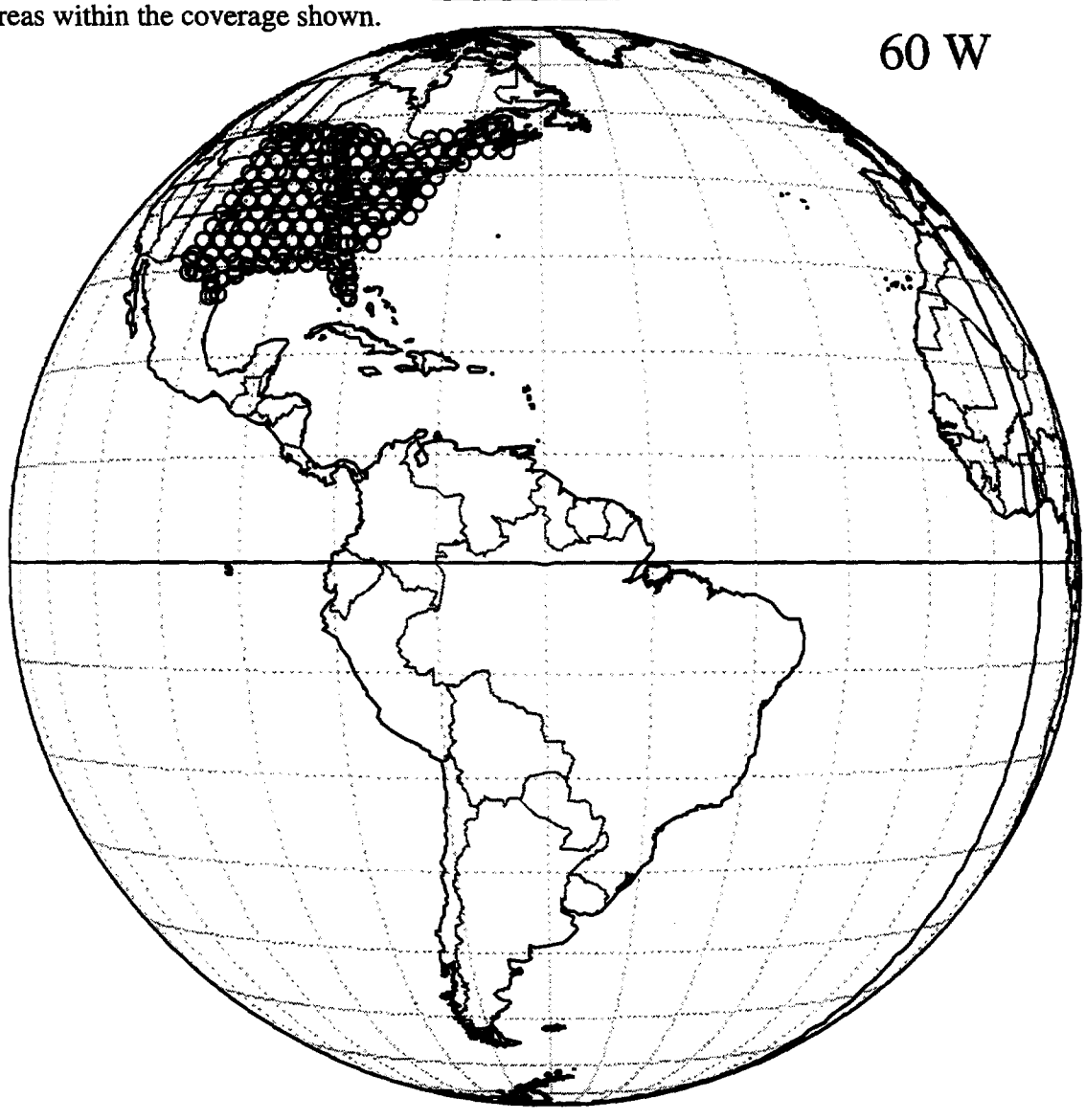
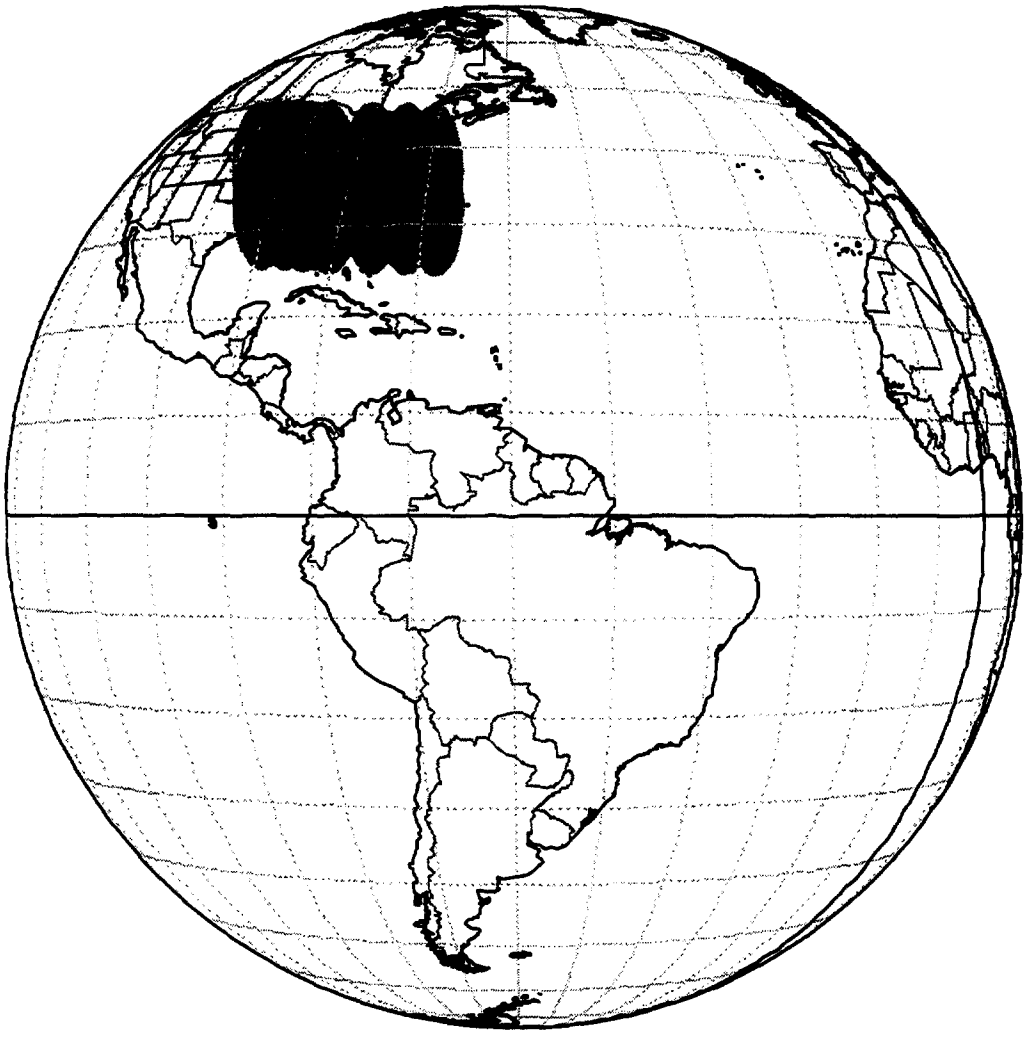


Figure C-5. V-band Satellite Coverage at 60° W (Eastern U.S. Service)

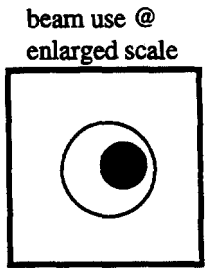
"Elliptical" beams provide Ku-band coverage as shown in shaded regions.



60 W

Figure C-6. Ku-band Satellite Coverage at 60° W (Eastern U.S. Service)

Each 0.15 deg beam is steerable within a 0.30 deg circle. Map shows 0.30 deg coverage circles. Box shows 0.15 deg beam inside a 0.30 deg beam. The 0.15 deg beams will be deployed over a maximum of 40 uplink and 40 downlink areas within the coverage shown.



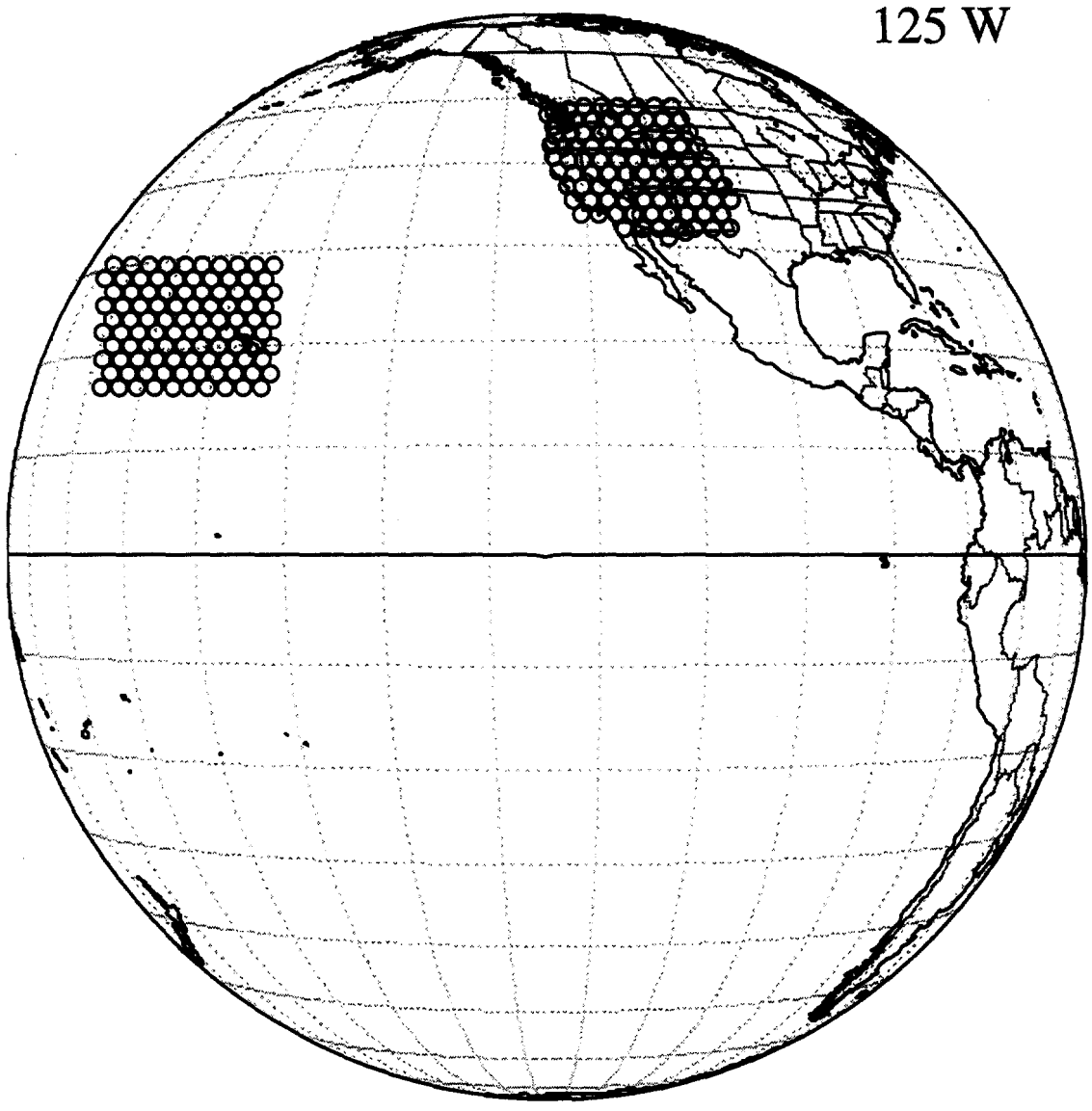
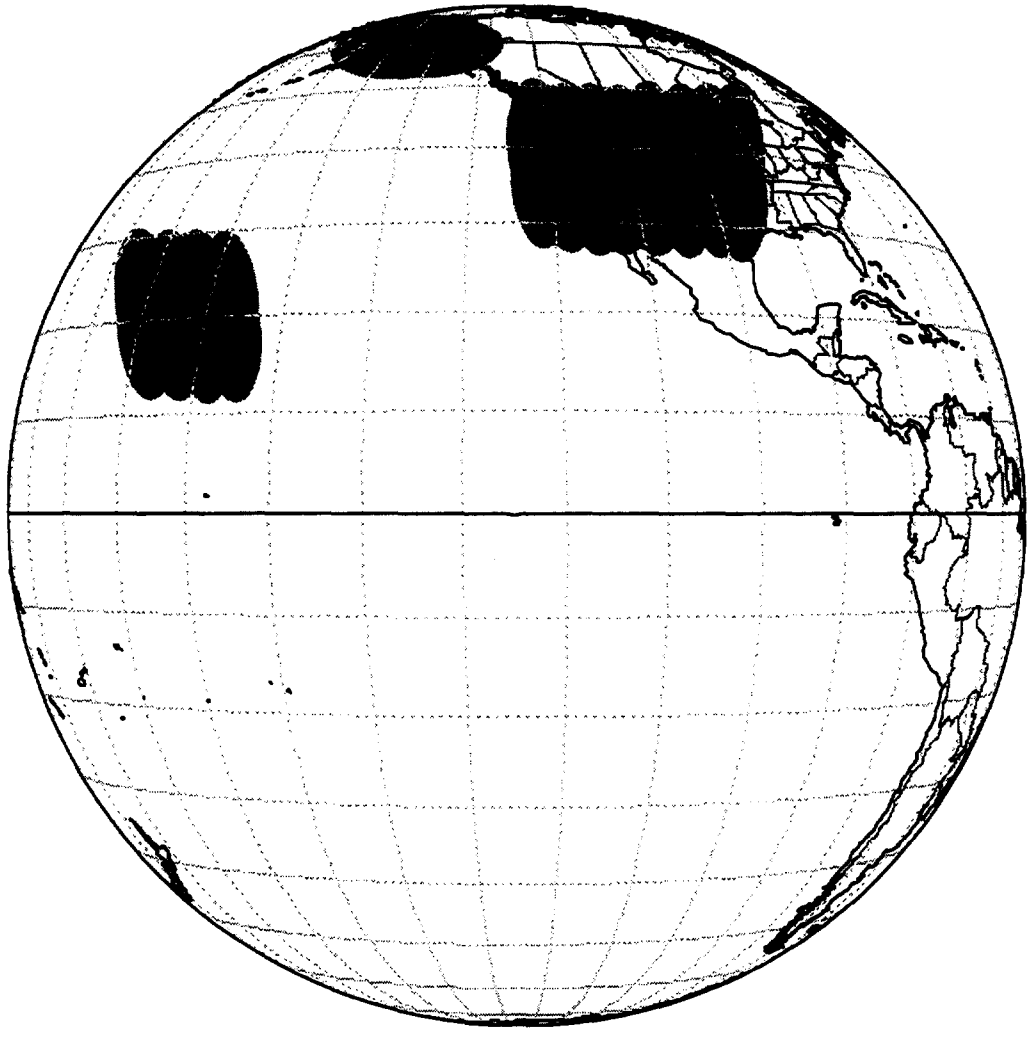


Figure C-7. V-band Satellite Coverage at 125° W (Western U.S. Service)

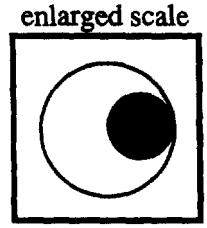
"Elliptical" beams provide Ku-band coverage as shown in shaded regions.

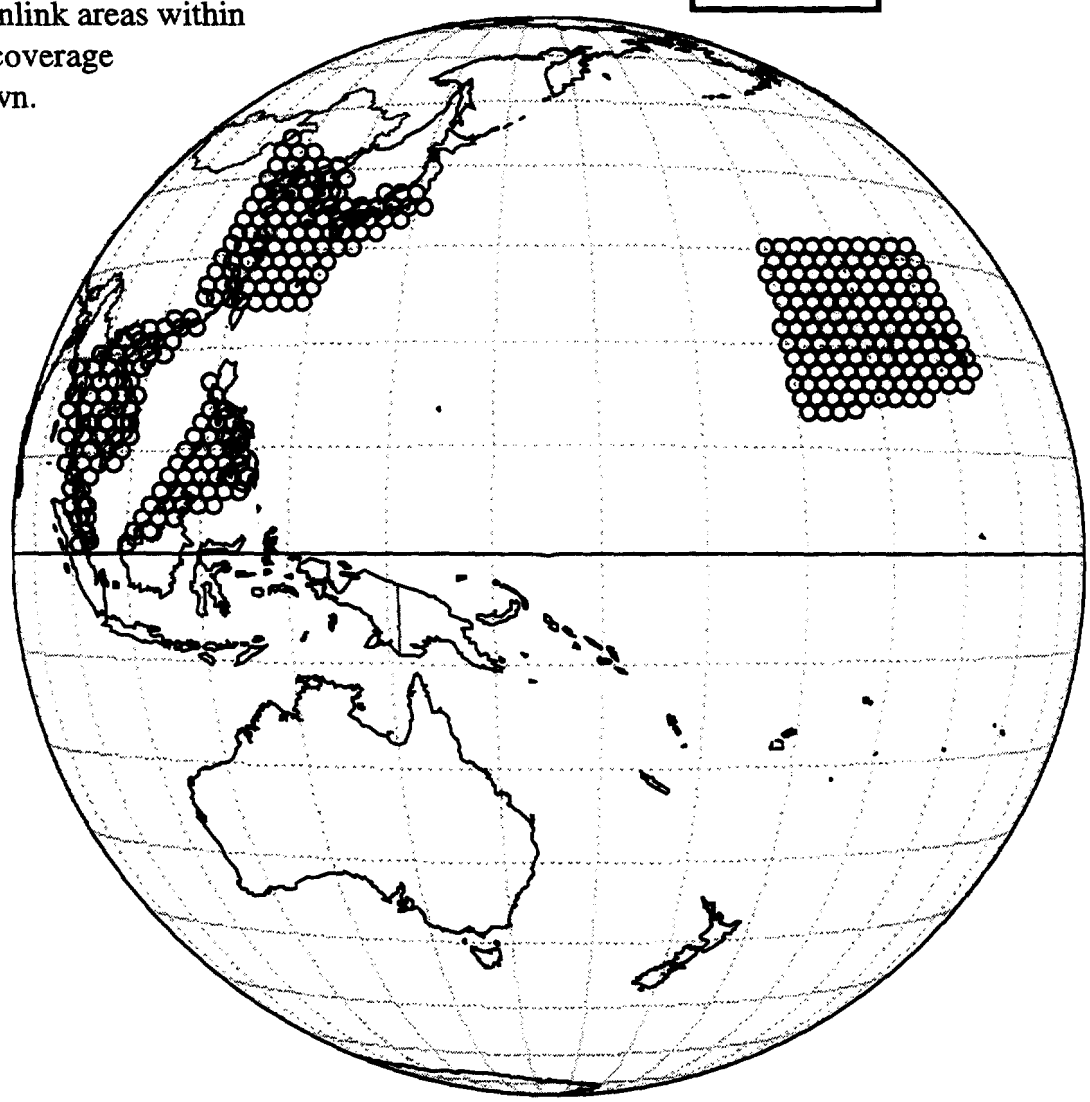


125 W

Figure C-8. Ku-band Satellite Coverage at 125° W (Western U.S. Service)

Each 0.15 deg beam is steerable within a 0.30 deg circle. Map shows 0.30 deg coverage circles. Box shows 0.15 deg beam inside a 0.30 deg beam. The 0.15 deg beams will be deployed over a maximum of 40 uplink and 40 downlink areas within the coverage shown.

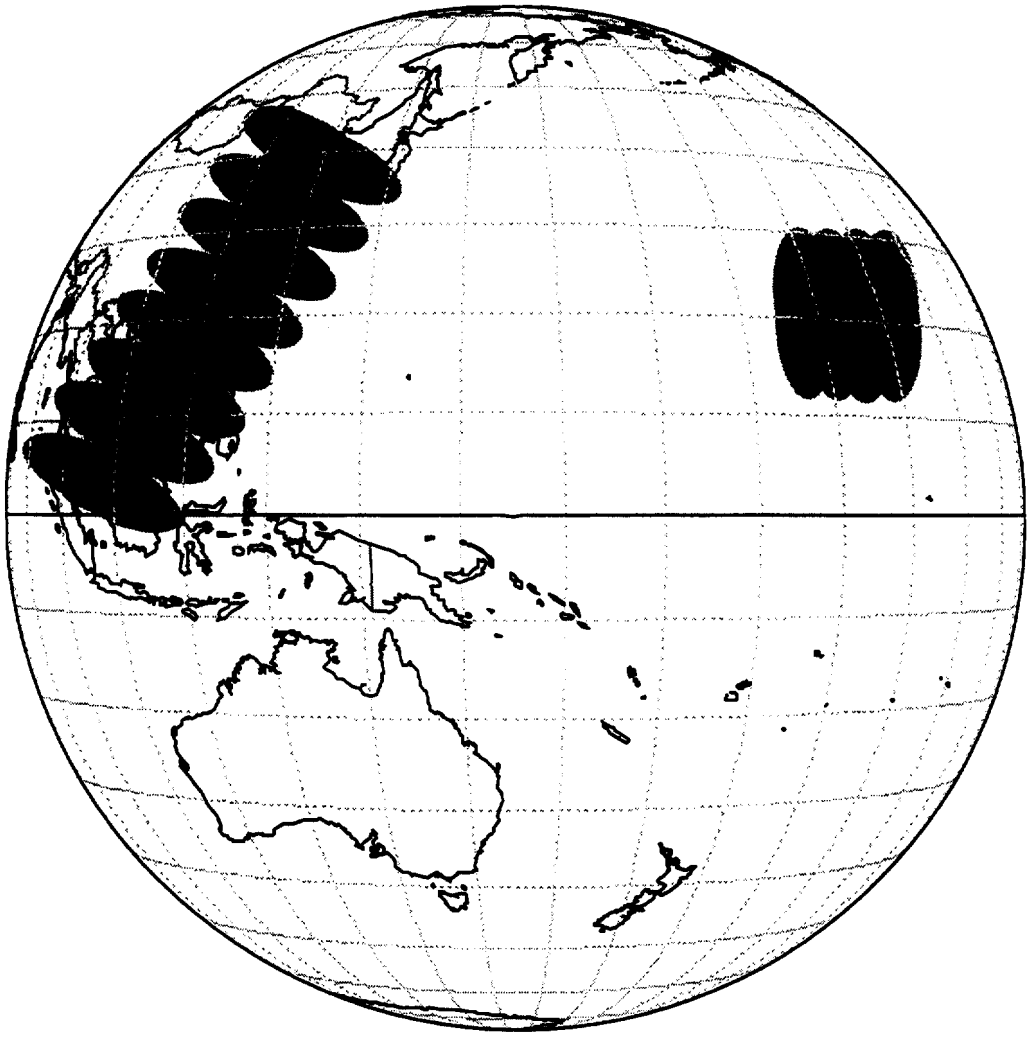




155 E

Figure C-9. V-band Satellite Coverage at 155° E

"Elliptical" beams provide Ku-band coverage as shown in shaded regions.



155 E

Figure C-10. Ku-band Satellite Coverage at 155° E